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# NASA Policy Directive

**NPD 2570.5E**Effective Date: July 11, 2011  
Expiration Date: July 11, 2027**COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES**[Printable Format \(PDF\)](#)

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**Subject: NASA Electromagnetic Spectrum Management - Revalidated 5/5/2022****Responsible Office: Space Operations MD****CHANGE HISTORY**

Chg#	Date	Description/Comments
1	09/13/2016	Revalidated with administrative changes to clarify responsibilities and to incorporate compliance with NPR 1400.1
2	05/04/2022	Revalidated with administrative changes to clarify responsibilities, removed shall statements

**1. POLICY**

This directive establishes policy, authorities, and responsibilities for obtaining approval for the use of the electromagnetic (EM) spectrum for any NASA mission, project, or other activity requiring the use of the EM spectrum for transmission, reception, or both, in accordance with National Telecommunications and Information Administration (NTIA) Manual of Regulations and Procedures for Federal Radio Frequency Management, (NTIA Manual), 47 CFR pt. 300.

**2. APPLICABILITY**

- a. This NPD is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers. This language applies to Jet Propulsion Laboratory (JPL) a Federally Funded Research and Development Center (FFRDC), other contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements.
- b. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms: "may" or "can" denote discretionary privilege or permission, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.
- c. In this directive, all document citations are assumed to be the latest version unless otherwise noted.

**3. AUTHORITY**

- a. The Federal Communications Act of 1934, as amended, 47 U.S.C. § 151.
- b. Spectrum Management Activities, 47 U.S.C. § 903.
- c. The Communications Satellite Act of 1962, as amended, 47 U.S.C. § 702.
- d. The National Aeronautics and Space Act, as amended, 51 U.S.C. § 20113 (a).
- e. Transfer of Telecommunications Functions, E. O. 12046, 3 CFR 158 (1978), 47 U.S.C. § 305, note.
- f. Frequency Authorization, NASA FAR Supplement and Clause 1852.223-71, 48 CFR subpt. 1823.71.
- g. Office of Management and Budget (OMB) Circular No. A-11, Radio Spectrum-Dependent Communications-Electronics Systems, sec. 31.12, and Spectrum Relocation Fund, sec. 31.13 (2021).

**4. APPLICABLE DOCUMENTS AND FORMS**

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- a. National Telecommunications and Information Administration (NTIA) Manual of Regulations and Procedures for Federal Radio Frequency Management, (NTIA Manual) (47 CFR pt. 300).
- b. NPD 1050.1, Authority to Enter into Space Act Agreements.
- c. NPR 1600.1, NASA Security Program Procedural Requirements.
- d. NPR 2570.1, NASA Radio Frequency Spectrum Management Manual.
- e. NPR 7120.5, NASA Space Flight Program and Project Management Requirements.
- f. NPR 7123.1, NASA Systems Engineering Processes and Requirements.
- g. International Radio Regulations, International Telecommunication Union (ITU), published in Geneva, Switzerland.

## **5. RESPONSIBILITY**

a. The Associate Administrator (AA) for Space Operations Mission Directorate (SOMD) is the designated NASA Spectrum Manager (SM) and is responsible for:

- (1) Implementing requirements in accordance with NPR 2570.1, NASA Radio Frequency Spectrum Management Manual.
- (2) Ensuring that all NASA activities surrounding the use of the EM spectrum comply with the NTIA Manual, the ITU Radio Regulations, and other national and international rules and regulations.
- (3) Ensuring adequate NASA representation in international and national organizations and forums concerned with EM spectrum regulation and utilization.
- (4) Ensuring adequate EM spectrum is available to support all Agency programs.
- (5) Supporting efforts to obtain adequate spectrum for NASA-sponsored commercial space programs.

b. The Deputy Associate Administrator (DAA) for Space Communications and Navigation (SCaN) is responsible for:

- (1) The overall planning, policy, and administration of the NASA Spectrum Management Program.
- (2) Addressing program and policy-level spectrum issues. The NASA Headquarters offices and responsibilities supporting the DAA in determining spectrum related issues are identified in Delegation of Authority.
- (3) Appointing a Director of Spectrum Policy and Planning who is responsible for the Agency's programmatic implementation of policies and applicable procedures authorized by this NPD, the overall efficacy of the program, and who has overall responsibility for national and international spectrum policy and planning.

c. The Director of Spectrum Policy and Planning will:

- (1) Designate a Deputy Director to act in his/her absence and assist in normal duties as required.
- (2) Designate an International Spectrum Program Manager, a National Spectrum Program Manager, and a Lunar Spectrum Manager to fulfill the Agency's spectrum management responsibilities in accordance with this NPD.
- (3) Designate a NASA representative to the Interdepartment Radio Advisory Committee (IRAC) and representatives to the various IRAC subcommittees. When necessary, will also provide a nomination to the State Department for the chair of U.S. ITU-R Study Group 7 (Science Services).

d. The International Spectrum Program Manager will carry out, under the direction of the Director of Spectrum Policy and Planning, the international spectrum management responsibilities assigned to the DAA SCaN, which are the EM spectrum activities involving entities external to the U.S., including the ITU, other non-NASA civilian space agencies (e.g., European Space Agency, Japanese Aerospace Exploration Agency, the Space Frequency Coordination Group (SFCG), and other entities external to the U.S. involved in the management of the EM spectrum.

e. The National Spectrum Program Manager will:

- (1) Carry out, under the direction of the Director of Spectrum Policy and Planning, the domestic spectrum management responsibilities assigned to the DAA SCaN, which are the EM spectrum activities involving entities internal to the U.S., including the NTIA, the FCC, and other national entities involved in the management or regulation of the EM spectrum.
- (2) Ensure, in consultation with the applicable Center/Facility Spectrum Management Offices, that all frequency assignments are carefully reviewed as directed by the Director of Spectrum Policy and Planning or his/her designee,

to determine if they should fall under the Controlled Unclassified Information (CUI) Category and/or should be Freedom of Information Act, 5 U.S.C. 552, exempt in accordance with NPR 1600.1, NASA Security Program Procedural Requirements.

(3) Ensure, in consultation with the International Spectrum Program Manager, that NASA Spectrum Management Plans are reviewed and updated annually, if necessary, and cooperate in assisting the NTIA in its Federal Spectrum Strategic Plan effort.

(4) Identify any programs at risk due to possible lack of spectrum allocations or the non-sustainability of existing allocations because of possible electromagnetic interference (EMI) conflicts.

f. The Lunar Spectrum Manager (LSM) is responsible for the lunar spectrum management for NASA and NASA-sponsored missions to the lunar region, under the direction of the Director of Spectrum Policy and Planning. The LSM will coordinate with the responsible mission Spectrum Manager and act as the external interface for all lunar spectrum matters.

g. The Headquarters Mission Directorates and Offices are responsible for appointing a spectrum liaison who will coordinate the spectrum-related activities and requirements within their Directorate or office; provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee; and provide support and representation to SCA Board of Directors meetings, as necessary, for addressing senior spectrum issues.

h. The Center Directors and the JPL Director will:

(1) Ensure that all Center/Facility spectrum requirements are reported annually to the Director of Spectrum Policy and Planning for assessments to determine the need for additional spectrum allocations.

(2) Ensure that all missions, projects, and other activities requiring use of the EM spectrum submit to the Center/Facility Spectrum Manager (SM) a request for certification of spectrum support, as early in the procurement cycle as possible, and for space and major communications-electronics systems, the spectrum certification requests will include cost estimates and economic alternatives in accordance with national policy (Office of Management and Budget (OMB) Circular A-11).

(3) Ensure the EM integrity of the property on which the Center or JPL and its Component Facilities are located, including protecting the property from EM interference.

(4) Implement the policies, applicable procedures, and spectrum management functions at the Center or JPL and Component Facilities in accordance with this NPD and NASA Procurement policies to ensure that spectrum-dependent missions, programs, or activities do not receive funding without approval from the Center SM. However, a waiver may be granted by the DAA SCA through the applicable Center SM and Director of Spectrum Policy and Planning or designee.

(5) Ensure that all RF-related procurements (radio-based communications systems, navigation, and tracking systems, wireless systems, which include, but not limited to: LAN, WAP, Wi-Fi, Bluetooth, walkie-talkies, wireless microphones; active or passive remote-sensing systems; all systems employing satellite (space) techniques; and any associated Earth-station sites and facilities) are made with the approval of the applicable Center/Facility SM and are in compliance with NASA and Federal regulatory policies.

(6) Designate a civil servant or JPL employee as Center/Facility SM to perform the spectrum management function, and an alternate Center/Facility SM to assist and provide backup to the primary Center SM.

(7) Ensure continuity of Center/Facility Spectrum Management by developing and maintaining a plan for Center/Facility SM succession, which is submitted annually to the Director of Spectrum Policy and Planning.

(8) Provide the funding required to fulfill the Center/Facility's spectrum management responsibilities in accordance with this policy.

(9) Ensure that communication outside of NASA on spectrum-related matters has been coordinated and approved by the Director of Spectrum Policy and Planning or designee.

i. The Goddard Space Flight Center (GSFC) SM will assist other Center/Facility SMs in investigating incidences of RF interference that may occur in the 2025-2110 MHz and 2200-2290 MHz bands. GSFC will consult with Johnson Space Center (JSC) and JPL SMs for protection requirements of human spaceflight and the Deep Space network (DSN), respectively.

j. The Center/Facility/JPL SMs will:

(1) Function as the interface between its Center/Facility/JPL missions and the other Center/Facility/JPL SMs.

- (2) Coordinate radio frequency use for NASA missions, programs, projects, and equipment at their respective Center.
  - (3) Ensure that all deep space system frequency requirements are provided to the JPL SM to assist in frequency selection.
  - (4) Ensure that all near-Earth mission requirements are coordinated with the GSFC SM, and if requested by Center/JPL SM, the GSFC SM will provide assistance in radio frequency interference analysis and in selection of frequencies.
  - (5) Ensure that all systems intended for human spaceflight missions are provided to JSC SM for assistance in radio frequency interference analysis and assistance in selection of frequencies.
  - (6) Ensure that all lunar mission requirements are coordinated with the Lunar Spectrum Manager for assistance in radio frequency planning and assistance in selection of frequencies. The LSM, if requested by the Center/JPL SM, will provide assistance in the selection of frequencies.
  - (7) Ensure that all missions, projects, and other activities, requiring use of the EM spectrum, submit a request for certification of spectrum support, as early in the acquisition and procurement cycles as possible.
  - (8) Ensure that these submissions are compliant with domestic (NTIA Manual) and international (ITU Radio Regulations) regulations, and SFCG recommendations. A waiver of this requirement may be granted by the Director of Spectrum Policy and Planning, through the applicable Center SM.
  - (9) Ensure that all missions, projects, and other activities received all required operational approval for planned use of the EM spectrum, prior to commencing operation.
  - (10) Ensure that NASA small satellite missions follow all of the same procedures as other NASA space missions for spectrum approvals.
  - (11) Ensure that all NASA Center/Facility spacecraft requirements for use of the S-Band (2025 - 2110 MHz and 2200 - 2290 MHz) are provided to the National Spectrum Program Manager and the GSFC SM for their review and approval.
  - (12) Ensure that Project managers are aware of the lead time required for identifying suitable frequencies, in the schedule and milestones of flight projects at their Center/Facility/JPL.
  - (13) Ensure that new missions meet the protection requirements of the DSN (Recommendation ITU-R SA. 1157) prior to making frequency selection and assignments to prevent costly operational coordination later and that information on the protection requirements of DSN is referred to the JPL SM.
  - (14) Advocate, through NASA Headquarters, modifications to the existing frequency allocations to enable new space, science, and aeronautical applications.
- k. All missions, programs, projects, and other activities requiring use of the EM spectrum, will:
- (1) Discuss spectrum considerations at each review in the project life cycle (as required in NPR 7123.1, NASA Systems Engineering Processes and Requirements and NPR 7120.5, NASA Space Flight Program and Management Requirements and submit a request for certification of spectrum support as early in the acquisition and procurement cycles as possible to its Center/Facility SM.
  - (2) Consult with the Center/Facility/JPL SM for appropriate spectrum frequency bands for the particular project spectrum requirements at the formulation phase of a project life cycle.
  - (3) Communicate any change in mission/system requirements to Center/Facility/JPL SMs that may occur after the initial discussions with the Center SMs, including any changes that occur after spectrum certification and/or authorization are secured.
  - (4) Not obligate funds for formal engineering (as determined by the Center Director), development and testing, or procurement of operational EM-radiating or receiving devices until the spectrum certification is approved by the NTIA and the approval is provided to the appropriate program office and Center/Facility/JPL SM.
  - (5) Use the EM spectrum as efficiently as practical to meet their requirements by the design and use of advanced spectrum-efficient technologies (e.g., software-defined radios, cognitive radios, and smart antennas) and advanced modulation and coding techniques.
  - (6) Use frequency bands that are properly allocated for their intended use unless permission to operate in another band is explicitly granted by the Director of Spectrum Policy and Planning or designee.
  - (7) Ensure that all space systems be equipped with mechanisms to remotely cease EM emissions unless there is a

human presence with this direct capability. If the space system has an automatic capability to cease transmissions, a waiver of this requirement may be granted by the Director of Spectrum Policy and Planning, through the applicable Center/JPL SM.

(8) Ensure that non-Federal entities placed in control of NASA transmitters operating in Federal bands (e.g., 2200-2290 MHz) have sufficient contractual constraints to ensure those transmissions are operated in accordance with NASA direction.

(9) Ensure that non-Federal entities using Federal spectrum only use that spectrum to meet NASA requirements, absent specific authorization otherwise.

(10) Not design, procure or operate devices which are intended to transmit in exclusive passive radio frequency (RF) bands allocated, either nationally or internationally, to the radio astronomy service, the Earth exploration-satellite service (passive), or the space research service (passive).

(11) Ensure verification of spectrum authority includes all system and operational specifications prior to launch or operation of any space systems requiring EM use.

## **6. DELEGATION OF AUTHORITY**

a. Associate Administrator for Space Operations Mission Directorate (SOMD). The AA for SOMD appoints a SOMD Spectrum Liaison who will coordinate all current and future human spaceflight operations programs, including the International Space Station and commercial low Earth orbit spectrum and communications requirements, and provide the spectrum requirements of those missions to the Director of Spectrum Policy and Planning or designee.

b. Associate Administrator for Exploration Systems Development Mission Directorate (ESDMD). The AA for ESDMD appoints a ESDMD spectrum liaison who will coordinate the exploration program's spectrum and communications requirements, for Artemis program robotic and human spaceflight missions to establish a sustainable human presence on the Moon, and provide the spectrum requirements of those missions to the Director of Spectrum Policy and Planning or designee.

c. Associate Administrator for Space Technology Mission Directorate (STMD). The AA for STMD appoints a STMD Spectrum Liaison who will coordinate the space technology program's spectrum and communications requirements for technology demonstration missions and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

d. Associate Administrator for Science Mission Directorate (SMD). The AA for SMD appoints a SMD Spectrum Liaison who will coordinate the science program's communications and remote-sensing (both active and passive) requirements and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

e. Associate Administrator for Aeronautics Research Mission Directorate (ARMD). The AA for ARMD appoints an ARMD Spectrum Liaison who will coordinate the aeronautics program's radio navigation, remote control, telemetry, and communications requirements and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

f. Associate Administrator for the Office of International and Interagency Relations (OIIR). The AA for OIIR appoints an OIIR Spectrum Liaison who will initiate formal bilateral agreements governing the use of EM spectrum resources with entities outside the United States (U.S.) and its possessions in accordance with NPD 1050.1, Authority to Enter into Space Agreements, and other U.S. laws and regulations, as applicable, consulting with the U.S. Department of State as appropriate. The OIIR Spectrum Liaison shall coordinate activities with the Director of Spectrum Policy and Planning or designee.

g. Associate Administrator for the Office of Legislative and Intergovernmental Affairs (OLIA). The AA for OLIA appoints an OLIA Spectrum Liaison who will initiate any contacts concerning the use of EM spectrum resources with entities of the U.S. Congress, its committees, subgroups, or staff. The OLIA Spectrum Liaison will coordinate activities with the Director of Spectrum Policy and Planning or designee.

## **7. MEASUREMENT/VERIFICATION**

a. Compliance with the policies set forth in this Directive are measured through the following:

(1) Ensure that all RF-related procurements (radio-based communications systems, wireless systems, which include: LAN, WAP, Wi-Fi, Bluetooth, walkie-talkies, wireless microphones; active or passive remote-sensing systems; all systems employing satellite (space) techniques; and any associated Earth station sites and facilities) are made with the approval of the applicable Center/Facility SM and are in compliance with NASA and Federal regulatory policies. (This is assurance that Agency personnel do not engage in any commitments that may be in violation of NASA or Federal policies or regulations).



- (2) Ensure that NASA does not cause EM interference at NASA Centers and Facilities and JPL or in the environment surrounding NASA Centers and JPL.
- (3) Ensure that all NASA frequency assignment actions are accurate and completed in time to meet mission requirements.
- (4) Regularly review non-NASA frequency assignment actions for their impact on NASA's ability to carry out its missions.
- (5) Complete required five and ten-year frequency assignment reviews in a timely manner.
- (6) Ensure that all NASA system requests for certification of spectrum support are accurate and processed through the NTIA IRAC Spectrum Planning Subcommittee in time to meet mission requirements.
- (7) Review non-NASA Government systems requests for certification of spectrum support by the IRAC Spectrum Planning Subcommittee for their impact on NASA's ability to carry out its missions.
- (8) Ensure that the international registration of all NASA systems is accurate and processed through the IRAC Space Systems Subcommittee in time to meet mission requirements.
- (9) Review non-NASA international systems considered by the IRAC Space Systems Subcommittee for their impact on NASA's ability to carry out its missions.
- (10) Ensure that all NASA RF assignments have been reviewed by their respective Center/Facility SM to determine if they should be exempt from 5 U.S.C. 552 due to their sensitivity or mission essential nature and, so marked, if necessary.
- (11) Ensure that all Center/Facility spectrum requirements are reported to the NASA Headquarters Spectrum Management Office.
- (12) Ensure that all systems, with RF transmitters, on NASA space flight missions have been authorized prior to commitment for launch.

## 8. CANCELLATION

NPD 2570.5D, NASA Electromagnetic Spectrum Management, dated October 17, 2005.

**REVALIDATED MAY 4, 2022 W/CHANGE 2, ORIGINAL SIGNED BY:**

**Charles F. Bolden, Jr.**  
**Administrator**

## ATTACHMENT A. REFERENCES

- a. Freedom of Information Act, 5 U.S.C. 552.
- b. Federal Communications Commission (FCC) Table of Frequency Allocations, 47 CFR § 2.106.

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